Disability in Iowa

Social and Health Impacts of Disability in Iowa: Analysis of the 2010 BRFSS Data

The Behavioral Risk Factor Surveillance Survey, 2010

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Executive Summary

This report is a follow-up to the Disability in Iowa: Health and Social Characteristics of Iowans with Disabilities, an analysis of the 2008 BRFSS and provides in depth analysis of disability as it relates to co-morbid conditions, its impact on access and social disparities.

The key findings were generally consistent with the 2008 report. In 2010, nearly 20% of non-institutionalized adult Iowans reported having some form of disability. About 18% will report activity limitations because of physical, because of physical, mental, or emotional problems and 7% having health problem that requires the use special equipment, such as a cane, a wheelchair, a special bed, or special telephone. The disability prevalence was strongly associated with age but not significantly different by gender, race and living in a rural area. Veterans have significantly higher prevalence of disability than non-veterans.

PWD suffer from worse health outcomes and increased risk of associated or co-morbid conditions than people without disability (PWOD). On average across all age groups, PWD had a higher prevalence of "Fair to Poor Health" and an increase median number of health impaired days in a month. However, the 2010 report demonstrated an increase in proportion of PWOD not receiving needed emotional support compared to the 2008.

The prevalence of chronic conditions was greater among PWD. Cardiovascular disease rates were five times higher among PWD between the age of 45-64 and twice as high among the older than 65. Chronic pulmonary disease rates were significantly higher, with 10% for emphysema, 12% for chronic bronchitis and 14% for asthma. Diabetes rates were higher among PWD. PWD were more likely to fall and more likely to sustain an injury after the fall.

Using the presence of chronic conditions to assess the risk of disability, the analysis indicates (after controlling for the effects of age, sex, veteran status and rural location) significantly higher risks for reporting a disability among Iowans with chronic bronchitis (OR=6.3) and emphysema (OR=6.7), current asthma (OR= 3.3) and lifetime asthma (OR=2.5), heart attacks (OR=2.7) and Stroke (OR=2.5) and Diabetes (2.9). Surviving any type of cancer was associated significantly with disability (OR=2.4).

Behavioral risk factors among people with disabilities vary by age group and type of risk factor. PWD have greater rate of smoking among the 18-44 age group. The 30-day alcohol use, binge drinking and heavy drinking prevalence was lower among PWD aged 45-64 compared to those without disabilities. . The 18-44 age groups had the same prevalence of current alcohol use and binge drinking than their counterparts among PWOD. PWD were less likely to report exercising in the past month in those aged45-64and hose 65 and older. Most adults Iowans reported always using their seat belt. The seatbelt usage was not different by disability status.

In 2010, comparing PWD and PWOD, the percent reporting not having healthcare coverage was not significantly different. However, PWOD were more likely to report not having a personal doctor particularly among the 65 and older. PWD were more likely to report not seeing a doctor because of cost and not having visited a dentist within the past year. People with disability in Iowa tended to receive

more preventive health screenings than those without disability. Iowa appears to do a good job providing preventive services to its constituents with disabilities. Across all age groups, the proportion of Iowans with disability who received screening tests was not significantly different from the proportion of Iowans without disability, except for mammogram among women aged 40 and older.

In terms of social outcomes, people with disability had greater social disparity than those without, including higher divorce rates, lower rates of employment and income, and less attainment of higher educational degrees.

Introduction

The surgeon call to Action in 2005 estimated that between 45 to 50 million Americans "are living with at least one disability", which may have started at birth or been acquired during their lifetime.
Since 1991 with the American with Disability Act up to the endorsement of World Health Organization (WHO) International Classification of Disease and Functioning, the disability question has been approached differently from one surveillance system to another. Working towards a common conceptual framework, the IOM defined disability as "inability or limitation to performing activity and roles expected within a social and physical environment" or as a "gap between the person's capacities and the demands of relevant socially defined roles and tasks in a particular physical and social environment".
This new understanding of disability is moving away from the disease model to the more comprehensive model taking into account personal-body structures and function- and environmental and contextual factors. Unfortunately, the department surveillance system has not caught up with the new definition.
This report is a part of the surveillance of disability in Iowa and provides in depth analysis of disability as it relates to co-morbid conditions (or secondary conditions), its impact on access and social determinants. The report focused on the 2010 BRFSS, which had several state questions pertaining to access added to the Core.

Methods

Description of the BRFSS:

The Iowa Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing telephone survey financially and technically supported by the Centers for Disease Control and Prevention with further financial support from public and private sources within the state. The BRFSS is designed to collect information on the health conditions, health risk behaviors, attitudes, and awareness of residents age 18 and over. It also monitors the prevalence of these indicators over time. Only adults residing in households were interviewed. People residing in group homes or institutions were not sampled. Households were selected using list-assisted random-digit dialing. This method provides a list of randomly chosen phone numbers from the pool of all existing phone numbers. These numbers are not drawn in a simple random fashion, but use what is known as the disproportionate stratified sampling technique (DSS). This sampling methodology was designed to produce a random sample of Iowa telephone numbers, including unlisted numbers and new subscribers in an efficient fashion [1].

Statistical Analysis:

When analyzing BRFSS data, inference is made about the entire adult population of the state of Iowa. However, since only people from a randomly chosen sample are asked the questions, the true prevalence in the population can only be estimated according to weighting procedures that account for the participant probability of selection. Specialized software, SUDAAN, designed to analyze hierarchical data is indicated when exploring the BRFSS data.
Any participant who answered yes to one of the following questions, were considered having a disability: "Are you limited in any way in any activities because of physical, mental, or emotional problems?" and "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?" Disability was considered in some cases as an outcome or an exposure depending on the question. Multivariate modeling to assess risk factors related to disability among adults Iowans was also applied.

Results

Disability Prevalence and Demographics

The prevalence of disability among non institutionalized adult Iowans has been stable over the years. From 2001 to 2010, on average, 18% of adult Iowans, nearly 460,000, reported having a disability except for 2001, 2002 and 2004 with only 15% (Figure 1). Though the differences were not statistically significant, the 2010 prevalence was close to 20% (one in five adults) continuing its increasing tendency from 2004, which may be due to the natural aging of Iowans. Iowans with disability were identified when they reported activity limitation because of physical or mental problems or needing equipment because of health issues. However, using the two questions determining the disability status, 17.6% of adult Iowans reported activity limitations, 95% CI (16.4; 18.8), and 6.9% reported needing equipment, 95% CI (6.2; 7.6). In 2010, the questions that assess the type and duration of the disability were dropped.

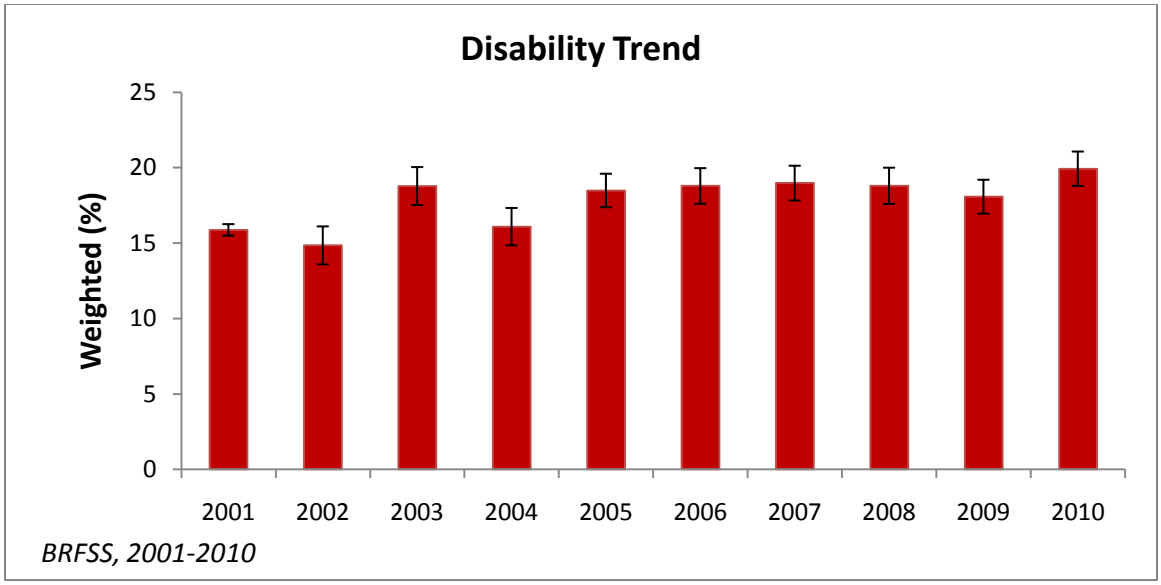


Figure 1: Disability Trends among Adult Iowans from 2001 to 2010

Table 1: Percent of Adult Iowans reporting Any Disability by Type of Limitation and Demographics, BRFSS 2010

Demographics	ACTIVITY LIMITATION		NEEDING SPECIAL EQUIPMENT	
AGE	Percent	95% CI	Percent	95% CI
18-44	9.9	(8.1; 12.1)	2.6	(1.6; 3.9)
45-64	22.1	(20.3; 24.0)	6.2	(5.2; 7.3)
Over 65	27.4	(25.4; 29.6)	18.0	(16.3; 19.9)
GENDER				
Male	17.1	(15.2; 19.1)	6.3	(5.3; 7.5)
Female	18.0	(16.6; 19.6)	7.4	(6.4; 8.5)
RACE/ETHNIC				
Non-Hispanic Whites	17.7	(16.4; 18.9)	6.9	(6.9; 7.7)
Minorities	15.9	(11.1; 22.3)	5.5	(3.4; 8.6)
VETERAN				
Yes	26.2	(22.6; 30.1)	10.8	(8.6; 13.4)
No	16.4	(15.2; 17.8)	6.4	(5.6; 7.2)

Table 2: Number and Percent of Adult Iowans Reporting Any Disability by Demographics, BRFSS 2010

Demographics	Strata	Weighted Pop	Percent	95% CI
Total	PWD	459,726	19.9	(18.7; 21.2)
AGE	18 -44	113,923	10.8	(8.9; 13.0)
	45-64	186,660	23.4	(21.6; 25.3)
	Over 65	159,143	34.9	(32.7;37.2)
GENDER	Male	222,352	19.7	(17.8; 21.8)
	Female	237,374	20.1	(18.6; 21.7)
RACE/ETHNICITY	Non-Hispanic Whites	426,307	20.0	(18.7; 21.3)
	Minorities	29,638	18.4	(13.3; 24.9)
VETERAN	Yes	80,127	30.4	(26.7; 34.5)
	No	379,479	18.6	(17.9; 19.9)
RURAL	Urban	232,261	19.1	(17.5; 20.9)
	Rural	227,465	20.8	(18.9; 22.9)

Notes: Pop= population;

Associated Health Conditions

In this report, the general, physical and mental health status comparing Iowans with disability to those without disability were assessed in terms of proportion reporting at least one day of fair and poor health as well as the median number of days. In addition, PWD were compared to PWOD in terms of the prevalence of chronic diseases like asthma, emphysema and chronic pulmonary disease, cardiovascular diseases including heart attacks and stroke, and metabolic disorders like obesity and diabetes. This report also included behavioral risk factors such smoking, drinking, and driving while intoxicated, seat belt usage and screening rates for prostate, breast and colon cancer. Finally, healthcare access as documented by insurance coverage, having a personal doctor and cost limitations was assessed across disability status.

General Health Status:

As a measure of health status and quality of life, the BRFSS asked participants to rate their general health in terms of "excellent, very good, good, fair or poor", and to estimate the number of days in the past 30 days when their physical, mental or either were not good (see BRFSS questionnaire for details). This reports combined the fair and poor responses. The proportion of respondents was stratified by age group. In this 2010 BRFS report, three age groups were used in the stratification, 18-44, 45-64, and over 65.

On average across all age groups, PWD had a higher proportion of "Fair to Poor Health" responses with values around 22%, 38% and 40% for the 18 to 44, 45 to 64 and the 65 and older age groups respectively compared to 6% and 15% among PWOD (Figure 2). The average number of "fair and poor health days" was greater among PWD irrespective of age. PWD reported nine (9) health impaired days per month due to poor health compared to five (5) days for PWOD. The average number of days reported were significantly higher among PWD aged 18 to 44 and 45 to 64. The difference was not significant among the 65 and older. Among PWD, overall physical health issues were responsible for on average nine (9) days of health impairment compared to four days among PWOD. Stratified by age the difference of the mean number of impaired physical health days was significant across the age groups. On the contrary,

there was no difference in the number of health impaired days related to mental health issues, which averaged five (5) days.
Despite having poorer health status, PWD were more likely than PWOD to reporting rarely receiving needed emotional. However, compared to the 2008 BRFSS, PWOD increasingly reported never receiving needed emotional support to the level of PWD. Overall, 8% of PWOD over the age of 65 reported never receiving needed emotional support. This finding needs to be monitored in the future. There was no difference across age groups. Among PWD, the 18 to 44 years old were more likely to report to rarely receiving emotional support. While, the 65 and older were more like to report never receiving emotional support. The proportion of PWD who reported "rarely" receiving emotional support was eight times higher among the 18 to 44 compared to PWOD belonging to the same age group, 9.5% vs. 1.2%.

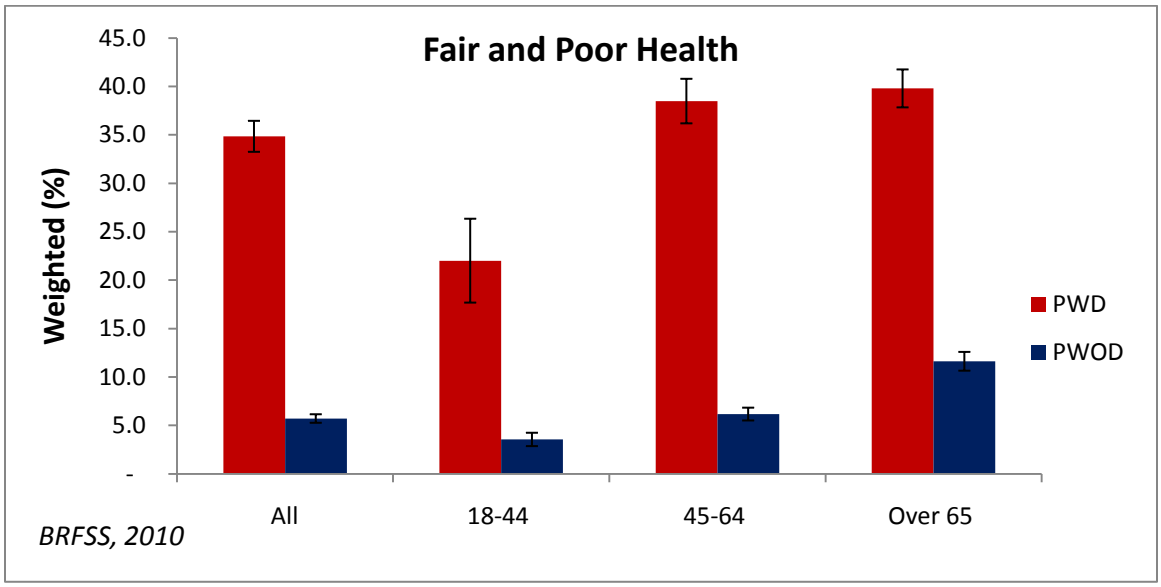


Figure 2: Proportion of Adult Iowans reporting Fair to Poor Health Condition by Age Group and Disability Status

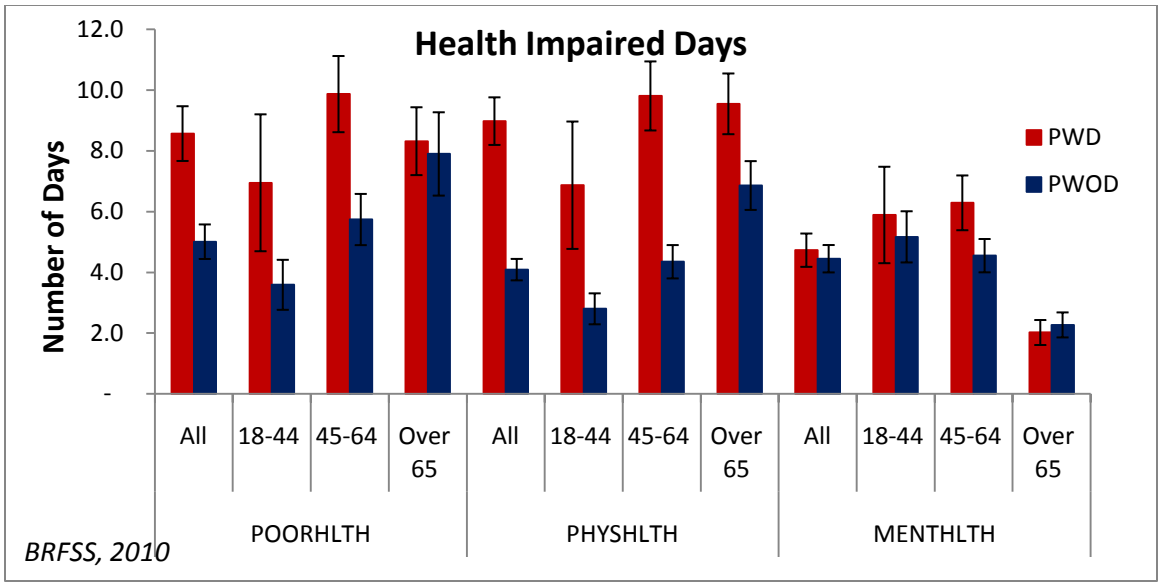


Figure 3: Average number of days when Health Status Fair and Poor by Age and Disability Status

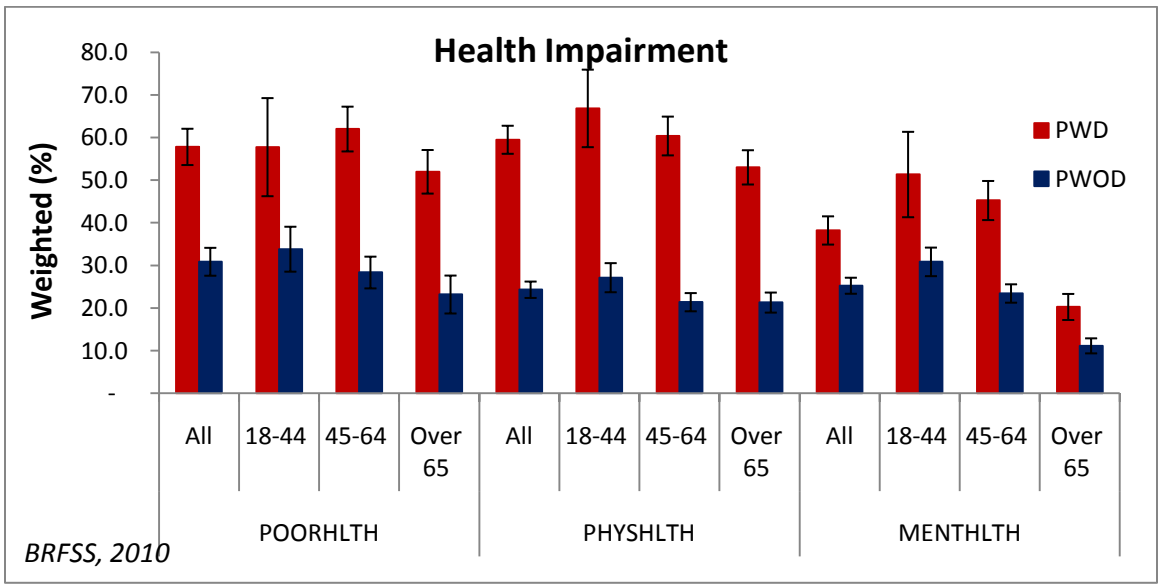


Figure 4: Proportion of Adult Iowans reporting at least One Day in the past 30 days of Health Impairment by Age and Disability Status

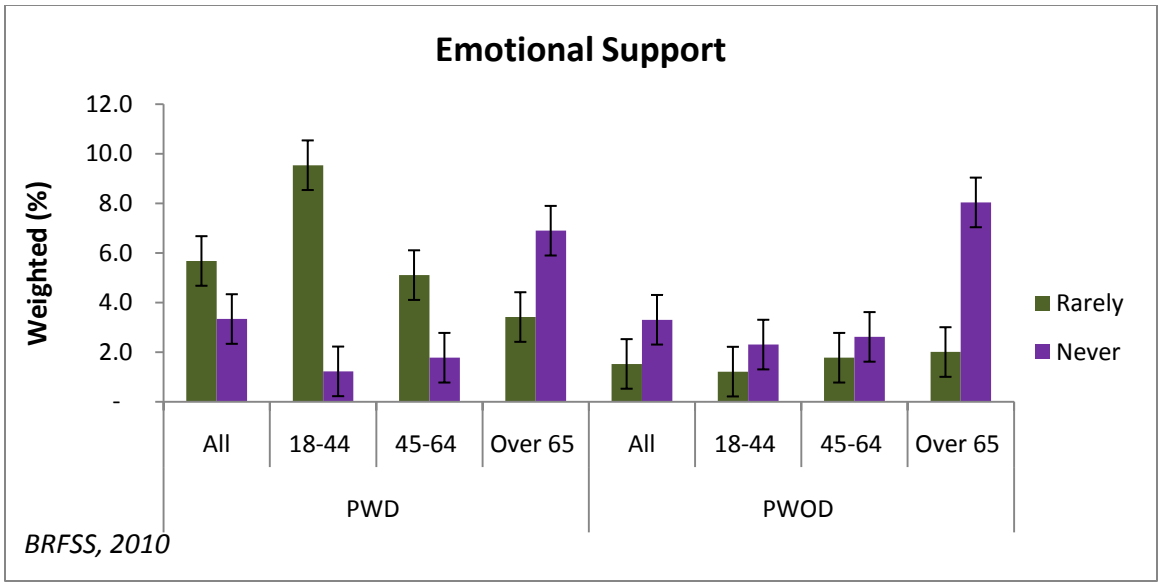
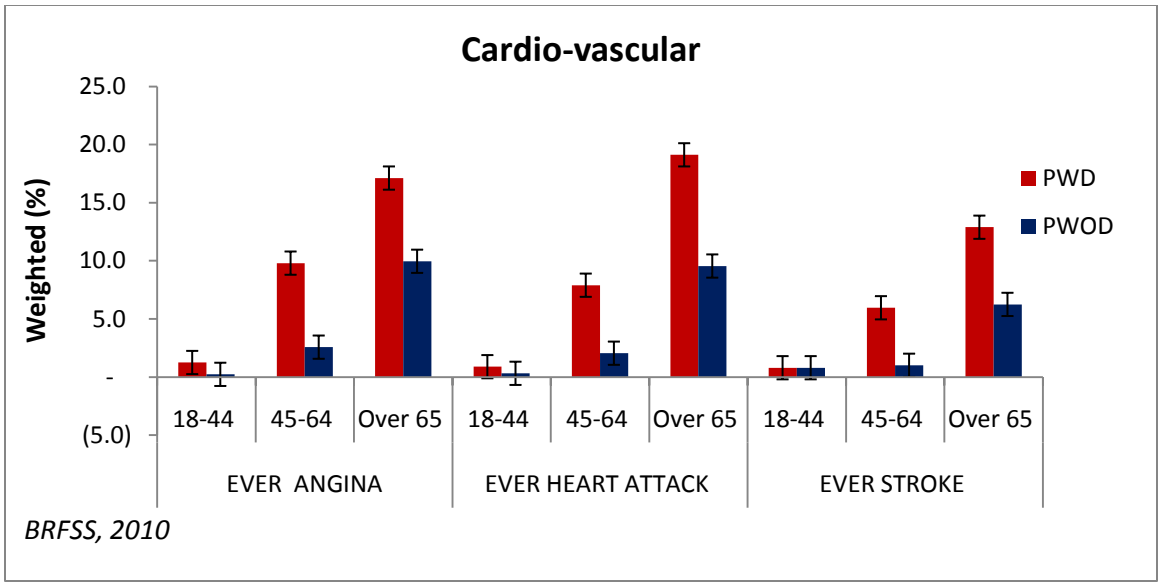


Figure 5: Proportion of Adult Iowans reporting 'Rarely or Never' receiving needed Emotional Support by Age and Disability Status

Cardio-vascular diseases

Cardiovascular diseases (CVD) consist of the two major causes of death and morbidity in the US, coronary heart disease with its two clinical forms, angina (pain of cardiac origin) and myocardial infarction (heart attack), and stroke. The BRFSS asked participants if they were diagnosed with these conditions by a doctor or health specialist.

Consistent with previous reports, CVD prevalence was associated with age. The proportion of people reporting CVD was higher among PWD across the different age groups. Compared to PWOD, the prevalence of heart diseases, as manifested by angina and heart attack, was on average five times higher among PWD between the age of 45-64 and twice as high among the older than 65. The same trend was observed for stroke prevalence. The prevalence of stroke among PWD 45-64 years old was around 6% and over 12% for those older than 65.



Chronic Pulmonary Diseases

For several years, Iowans have been asked about Chronic Obstructive Pulmonary Disease (COPD) and Chronic Bronchitis (CB) using the state added questions. As the part of the core BRFSS questions, they were asked also about ever having asthma and their asthma status. These three conditions are the most common and disabling pulmonary diseases in the US.

Figure 6 shows the distribution of chronic pulmonary conditions by age group and disability status. Across all age groups, PWD were more likely to report having COPD, CB, and Asthma. The overall prevalence of chronic pulmonary disease among PWD was respectively 11, 12 and 14% for emphysema, chronic bronchitis and asthma, which was significantly higher compared to PWOD with only 1, 2, and 6%. COPD was most prevalent among the older Iowans with disability, those in the 45-64 and 65 and older age groups. In contrast, chronic bronchitis prevalence was identical among all age groups. This may be explained by the fact COPD is a complication of earlier chronic bronchitis, which is mostly associated with smoking. Current asthma prevalence was significantly higher (12%) among PWD but also important among PWOD (6%).

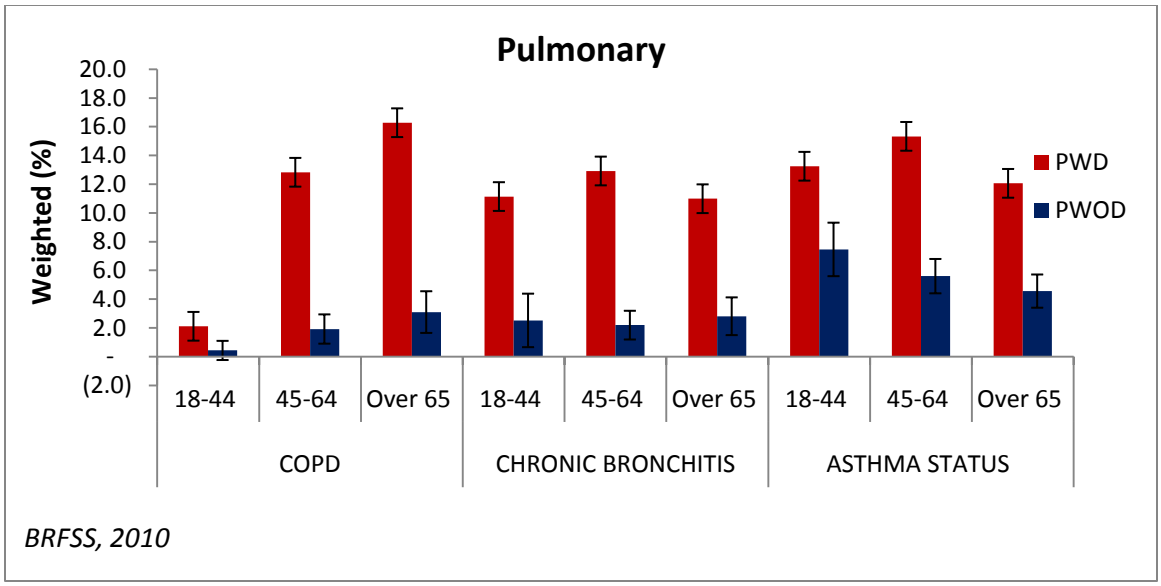


Figure 6: Proportion of Adult Iowans reporting selected Pulmonary Diseases by Age group and Disability Status

Metabolic Disorders

For other chronic conditions such as overweight and obesity, the prevalence was not significantly different when comparing PWD and PWOD. There was a tendency of an increased risk of overweight among PWD but the difference was not statistically significant. However, PWD had a greater risk for diabetes particularly among the 45-64 years old. As PWD 45-64 years of age were three times more likely to report Doctor diagnosed diabetes compared to PWOD from the same age strata with respective prevalence of 21% vs. 7%. However, compared to the 2008 BFSS, the risk difference between PWD and PWOD among the 65 and older is not significant.

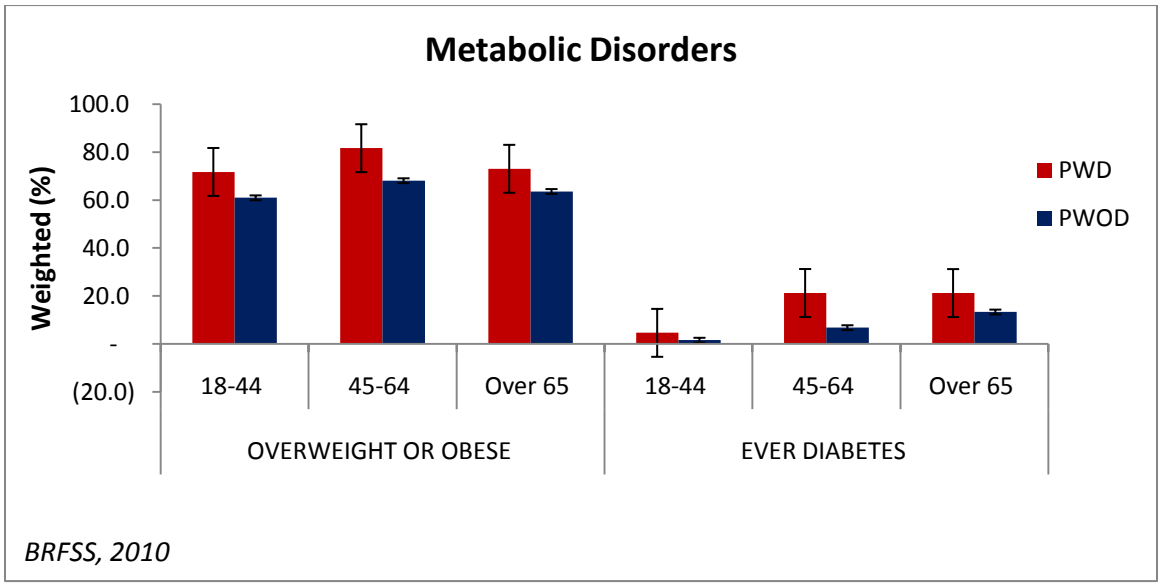


Figure 7: Proportion of Adult Iowans reporting being overweight, obese or ever having Diabetes by Age Groups and Disability Status

Cancer

Lifetime cancer prevalence and survivorship was assessed by asking the questions: "Have you EVER been told by a doctor, nurse, or other health professional that you had cancer?" And as a follow-up, the age of cancer diagnosis, its type and treatment received were asked. In 2010, 7.8%, 95% CI (6.9; 8.8), of adult Iowans reported having ever been told they had cancer. PWD had almost three times the prevalence of lifetime cancer diagnosis compared to PWD. Prostate cancer prevalence was not different across disability status. PWD that reported surviving cancer were more likely to report breast cancer, melanoma, renal and lung cancer.

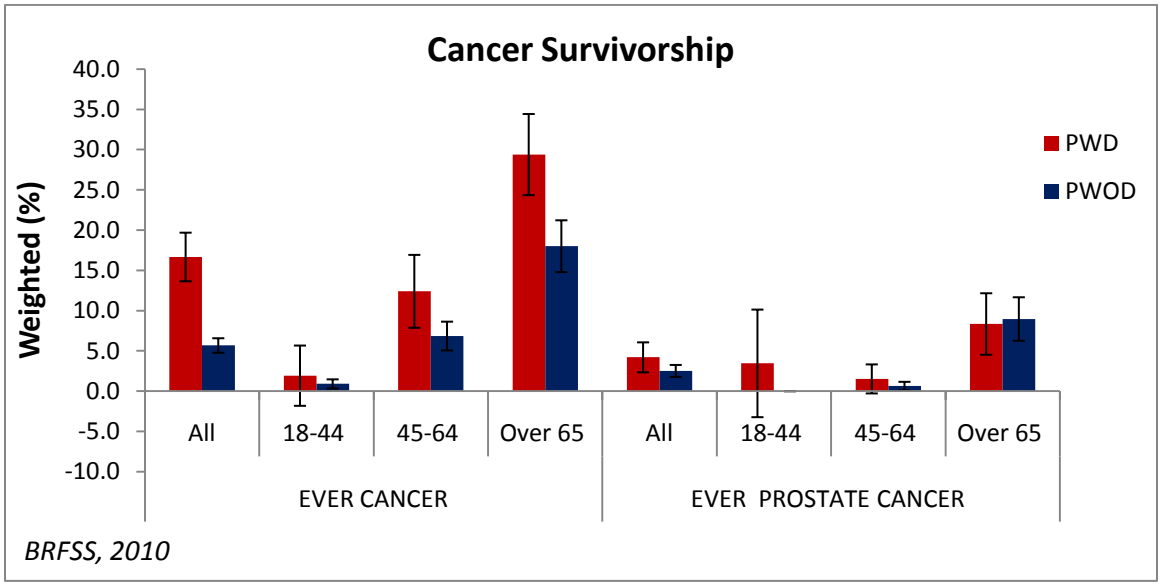


Figure 8: Proportion of Adult Iowans reporting been told they had Any Cancer or Prostate Cancer by Age groups and Disability Status

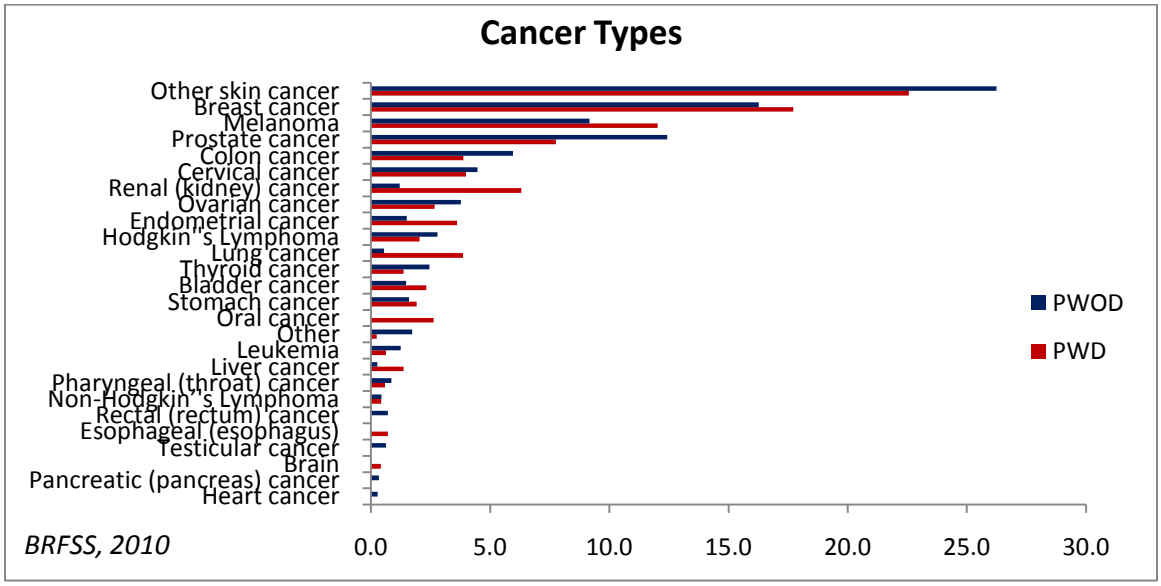


Figure 9: Percent Distribution of the reported Cancer Types among Adult Iowans told they had Cancer by Disability Status

Secondary falls and injuries

For the first time in the surveillance of disability, falls and secondary injuries were analyzed. The BRFSS asked two questions to assess fall and injuries: "In the past 3 months, how many times have you fallen?" and "How many of these falls caused an injury? By an injury, we mean the fall caused you to limit your regular activities for at least a day or to go see a doctor". Overall, PWD were more likely to have fallen within the last three months (Figure 8). The proportion of fallers (FALLPAST3MO) was greater among the 45-64 age groups. Among those who fell, PWD were 84% of the time more likely to sustain an injury (INJ_FALL) than PWOD.

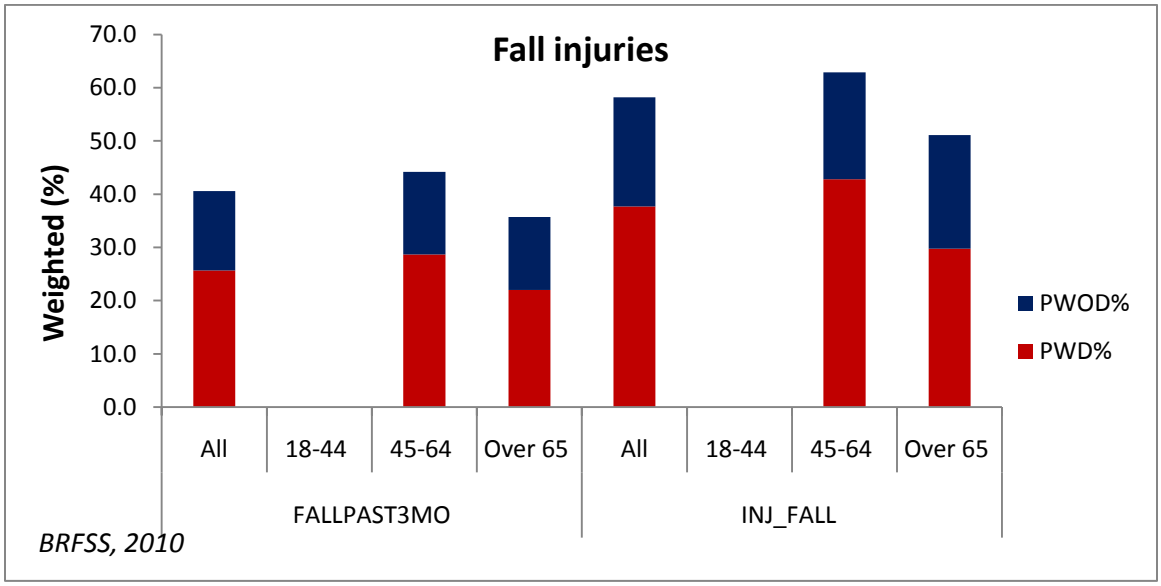


Figure 10: Proportion of Adult Iowans reporting Having Fallen within the Last Three Months and Sustaining Injuries by Age Group and Disability Status

Modeling Risk of Disability

Adjusting for age, gender, rural location and veteran status, we modeled the odds for having a disability while suffering from co-morbid conditions such as chronic bronchitis, COPD, asthma (current and lifetime), CHD and myocardial infarction, stroke, diabetes and cancer. In the multivariate logistic regression, disability was the outcome and the predictor variables, the chronic conditions. The variables were tested independently meaning each co-morbid condition was analyzed with regard to disability separately while including in the specific model age, gender, veteran status and rural location for adjustment purposes.

Associated chronic conditions were good predictors of disability. After controlling for the effect of age, sex, rural location and veteran status, the risks for reporting a disability were significantly higher for Iowans with chronic bronchitis (OR=6.3) and emphysema (OR=6.7), current asthma (OR= 3.3) and lifetime asthma (OR=2.5), heart attacks (OR=2.7) and Stroke (OR=2.5) and Diabetes (2.9). Surviving any type of cancer was associated significantly with disability (OR=2.4). However, surviving prostate cancer did not yield a significant association with disability.

Table 3: Adjusted-Odds of Disability by Chronic Conditions

Effects of Chronic Diseases	Odds Ratio	95% CI
Ever told had Chronic bronchitis?	6.3	(12.5; 3.4)
Ever told had Emphysema or COPD	6.7	(12.5; 3.3)
Current asthma status	3.3	(2.3; 4.7)
Former asthma	1.2	(0.6; 2.3)
Lifetime asthma	2.5	(1.8; 3.5)
Ever diagnosed with Angina	2.1	(1.4; 3.1)
Ever diagnosed with heart attack	2.7	(1.8; 4.0)
Ever diagnosed with a stroke	2.5	(1.6; 3.8)
Ever told by doctor you have diabetes	2.9	(2.0; 4.3)
Ever told you had cancer	2.4	(1.6; 3.7)
Ever told you had prostate cancer	1.5	(0.5; 4.4)

Notes: Adjusted odds ratios for age, sex, veteran status, and rural location;

Heath Behaviors

Binge drinking and Heavy drinking was defined respectively, as having 5 or more drinks (4 for females) on one occasion in the past 30 days and consuming two or more drinks (one or more for female) per day every day. A current drinker was defined as having any drink of alcohol in the past 30 days. Survey participants were identifed as current smokers when they reported smoking cigarettes every day or some days in the past 30 days. Figure 11 shows the distribution of 30-day alcohol use, binge drinking and heavy drinking, and 30-day smoking by age group and disability status.

According the 2010 state epidemiological profile, Alcohol is the most used substance in Iowa. In 2010, the Office of Applied Studies through SAMHSA ranked Iowa in the top 10 states for binge drinking and has a significantly higher prevalence compared to the nation. When analyzed by disability status, PWD had a lower prevalence of 30 day alcohol use (44% vs. 58%) and binge drinking (12% vs. 18%). The 30 days alcohol use or current drinking was significantly lower among the 45-64 and the 65 and older age groups. Contrary to earlier reports, heavy drinking prevalence among PWD was not significantly different to PWOD. The 2010 BRFSS comparison on alcohol yielded the same tendencies than the 2008 analysis with, however, small differences that need paying attention to in the future. The 18-44 age groups are showing the same prevalence of current alcohol use and binge drinking than their counterparts among PWOD. This is new comparatively to previous reports where the analysis stratification was limited of the 18-64 age groups. The significance difference may have been driven by the 45-64 subgroups.

Iowans with disabilities were more likely than PWOD to be current smokers particularly in the 18-44 age groups (32% vs. 16%) and among the 45-64 (25% vs. 17%) but not so much different among the 65 and older. This indicator is very important since it brings forth the issue of smoking as the cause of disability

Looking what Iowans are doing to protect their health, we used two indicators - seat belt use and exercise - that are very important in prevention. More than 85% Iowans reported always using their seat belt and 75% reported having “leisure time physical activities in the past month.” There was no difference by

disability status and across the age groups on seat belt use. However, PWD reported a lesser inclination for exercise. Overall, compared to PWOD, Iowans with disability were less likely to engage in any exercise in the past month (63% vs. 78%). The difference was not significant in the 18-44 age groups (74% vs. 81%) but significant for the 45-64 and 65 and older.

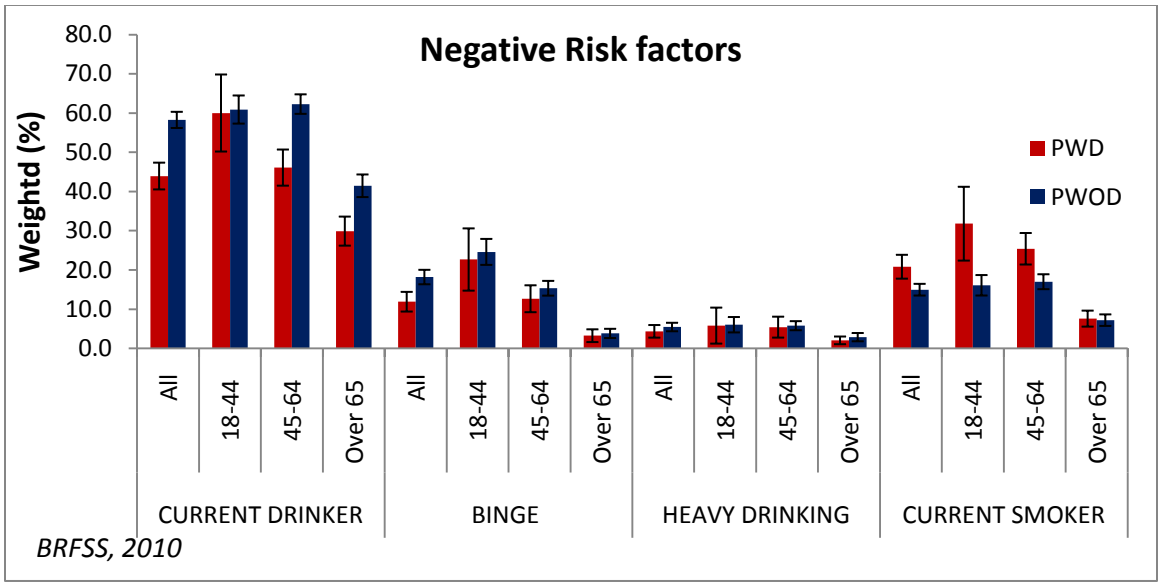


Figure 11: Proportion of Adult Iowans reporting Drinking Alcohol and Smoking by Age Group and Disability Status

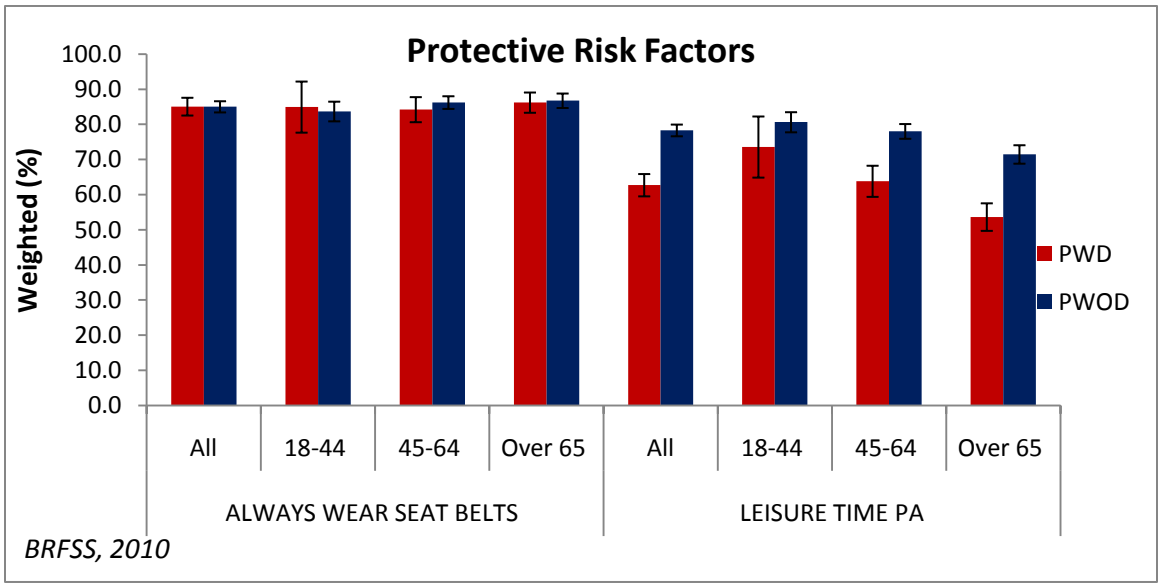


Figure 12: proportion of Adult Iowans reporting Seat Belt use and Physical Activities by Age Group and Disability Status

Access to Healthcare

Several questions were used to assess healthcare access. In this 2010 report, we assessed disparities using the lack of health insurance coverage (limited to 18-64 years old), the lack of personal medical professional, not visiting a doctor because of cost and not receiving needed flu shot (limited to 65 and older), health screening and having a dental home.

When appropriate, the results were stratified by age. In 2010, several state added questions on access, such as "type of insurance", "being turned down for insurance because of disability" and "skipping medications or spending less money on basic health needs because of cost", were dropped from the questionnaire.

Insurance Coverage, medical and dental home

The State of Iowa has generally good health care coverage for its resident 65 and older. Over 95% of elderly Iowans have health insurance and access to medical professionals such as personal doctor. About 12% of Iowans reported not having healthcare coverage. Comparing PWD and PWOD, the percent reporting not having healthcare coverage was not significantly different. However, PWOD were more likely to report not having a personal doctor particularly among the 65 and older. PWD were more likely to report not seeing a doctor because of cost and not having visited a dentist within the past year.
On average, over 70% of respondents reported having had a routine check-up within the year. Overall, among PWD, 81% will report doing so compared to 70% of PWOD. Over 75% of respondents reported having had a dental cleaning within the last year. PWD were less likely than PWOD to report dental cleaning with a respective proportion of 68% and 78%. More than 70% of Iowans over the age of 65 received flu shot independently of disability status.

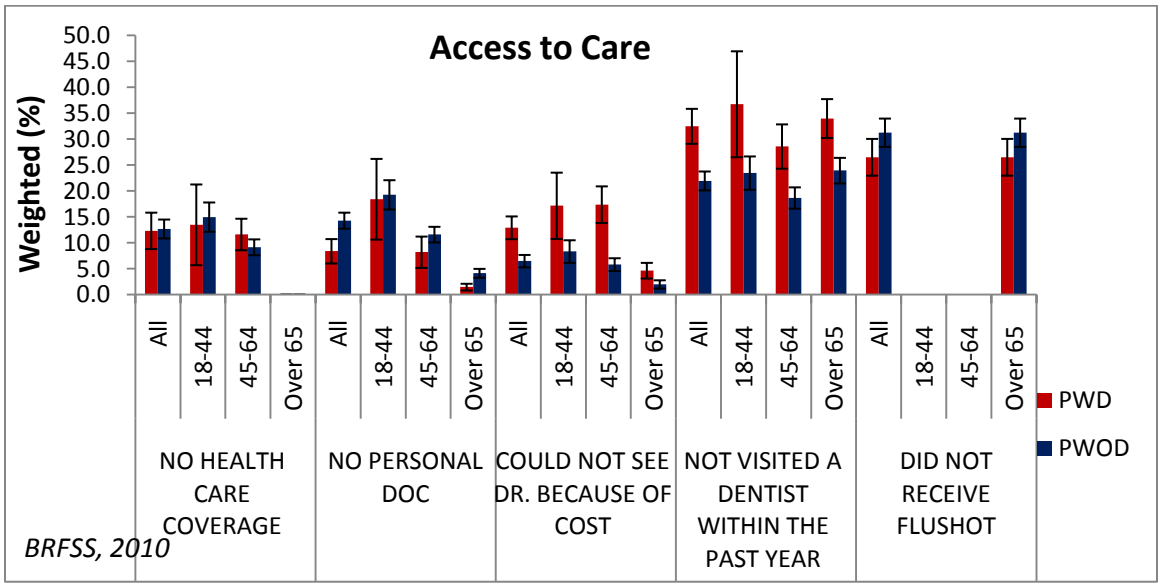


Figure 13: Proportion of Adult Iowans reporting lack of Healthcare Access by Age Group and Disability Status

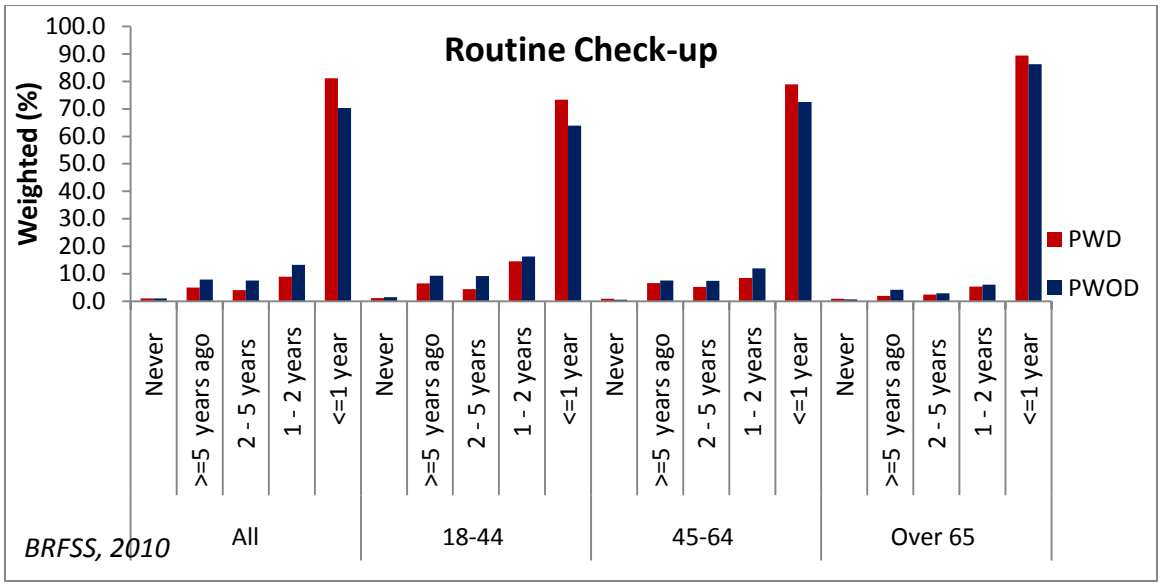


Figure 14: Proportion of Adult Iowans reporting Time since Last Routine Check-up by Age Group and Disability Status

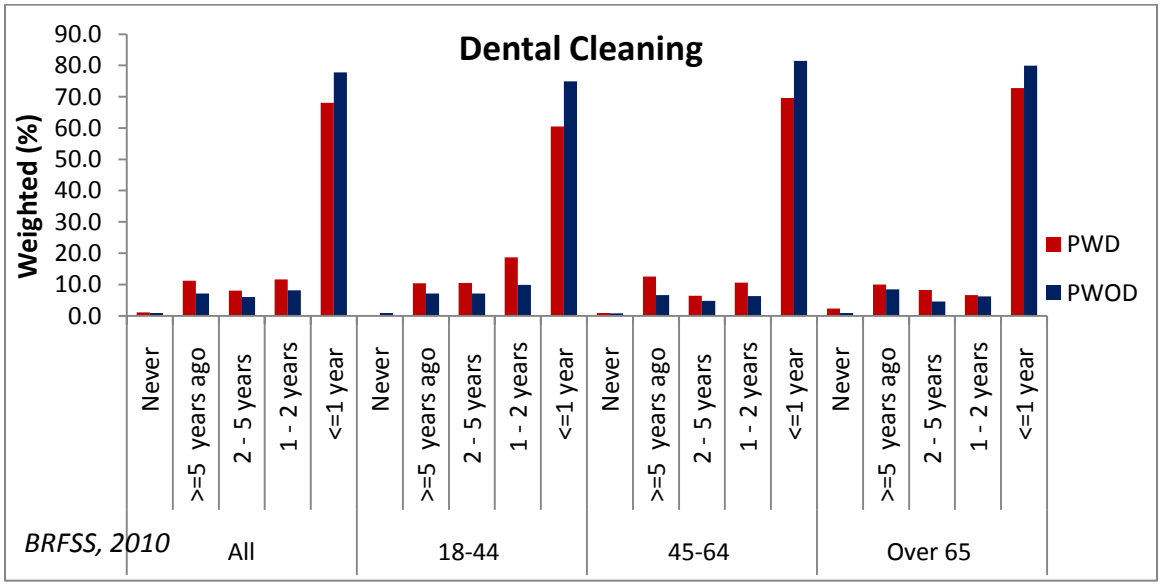


Figure 15: Proportion of Adult Iowans reporting Time since Last Dental Cleaning by Age Group and Disability Status

Health Screenings

The proportion of Iowans with disability that reported receiving the selected screening tests was different from those without disability except for pap-smear screening test (Figure 16). On average, the proportion of women over the age of 40 who reported not having had a mammogram within the past two years was 28% compared to 22% for PWOD. Males over the age of 40 reported having had a PSA test with the last two years more than 50% of the time. PWD were less likely to report not having a PSA test compared to PWOD. The proportion of males 40 and older who did not have a PSA test was lower among PWD (22% vs. 31%). Overall, 29% of PWD over the age of 50 reported not having had a sigmoidoscopy compared

to 39% among PWOD. In this 2010 BRFSS compared to the 2008 results, the proportion of Iowans with disability over the age of 50 who did not have a sigmoidoscopy was significantly lower than those without disability. The blood stool home kit is less utilized these days as a primary screening tool, three out of five adult Iowans, 50 and older, reported not ever having had the home kit test. The proportion of PWD who reported not having had the home kit test was significantly lower than PWOD with a respective percentage of 54% and 62%. In summary, PWD seem to be receiving preventive services at a higher rate than PWOD except for women 40 years and older with mammogram.

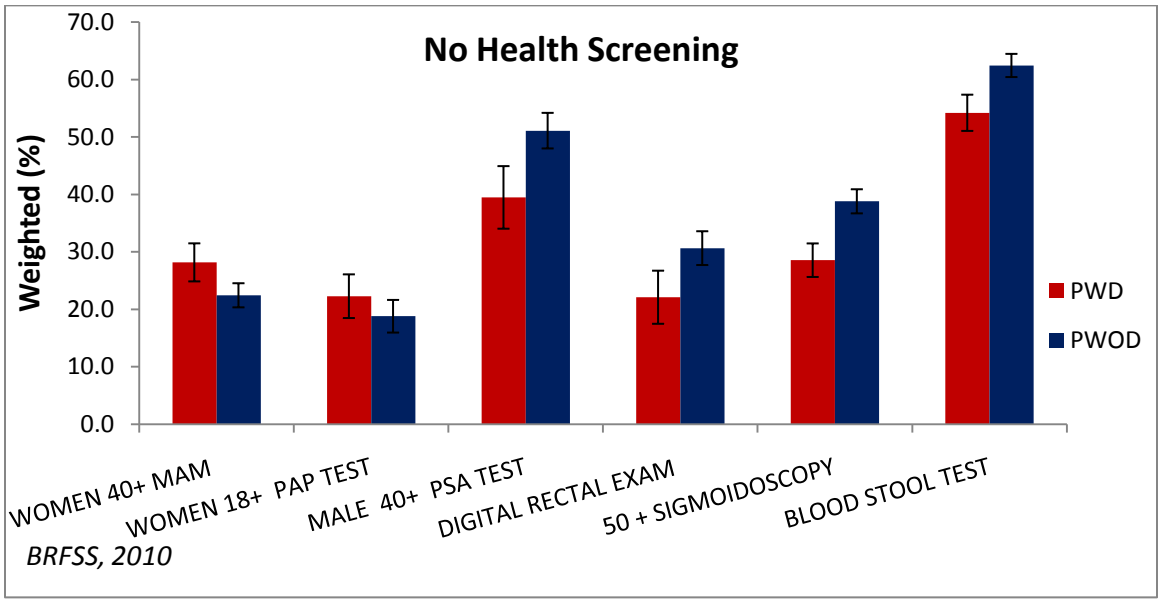


Figure 16: Proportion of Adult Iowans reporting not having Had a Selected Screening Tests by Disability Status

Socio-economical outcomes

Disability is a known cause of social disparities. In 2010, consistent with previous data, Iowans with disability were significantly more likely to be affected in terms level of education completed, employment status, income generated and marital status (Table 4).

PWD were less likely to graduate from college or technical school. On average, one quarter of Iowans with disability will graduate, compared to one third of those without. However, about 65% of PWD will graduate from high school and 29% will attend college or technical school, not differently from PWOD. Therefore, the lower college graduation rate among PWD needs to be researched further to indicate whether it is related to the inadequacies of the teaching methods in elementary and high school or to the nature of the disability.

Certainly, employment and income are related to education achievement. On average 20% of PWD reported inability to work, which reduced the employment rate to 46% compared to 67% among PWOD. About 5% of PWD reported being out of work for more than a year compared to 2% of PWOD. There was no difference in the proportion of homemakers, students, and self-employed. Considering income level disparities, PWD reported lower income than PWOD with 37% earning less than $25,000 compared to 17%, and 34% earning more than $50,000 compared to 55%. In terms of family life, PWD were more likely to be divorced (12% vs. 6%) and to be widowed (13% vs. 5%). The greater proportion of widows

or widower among PWD may be confounded by age. In summary, the social disparities in 2010 were consistent with the 2008 results.

Table 4: Distribution of Socio-economical Outcomes by Disability Status, BRFSS 2010

SOCIAL OUTCOMES		PWD		PWOD	
		%	95% CI	%	95% CI
LEVEL OF EDUCATION COMPLETED	Did not graduate High School	9.4	(7.3; 12.2)	6.2	(5.2; 7.3)
	Graduated High School	36.5	(33.4; 39.8)	31.9	(30.0; 33.9)
	Attended College or Technical School	29.0	(26.1; 32.1)	28.3	(26.4; 30.4)
	Graduated from College or Technical School	**25.1**	(22.3; 28.1)	**33.6**	(31.8; 35.5)
EMPLOYMENT STATUS	Unable to work	**20.1**	(17.0; 23.5)	0.6	(0.4; 0.9)
	Out of work < 1 year	3.4	(2.1; 5.6)	3.8	(2.8; 5.1)
	Out of work >= 1 year	**5.5**	(4.0; 7.7)	1.7	(1.2; 2.5)
	A homemaker	9.4	(7.4; 12.0)	7.7	(6.7; 8.8)
	A student	4.1	(2.1; 7.7)	7.7	(6.1; 9.8)
	Self-employed	11.5	(9.2; 14.3)	11.5	(10.3; 12.8)
	Employed for wages	46.0	(41.5; 50.5)	**67.1**	(64.7; 69.3)
INCOME CATEGORIES	Less than $15,000	**17.3**	(14.5; 20.5)	5.8	(4.6; 7.3)
	$15,000 - $25,000	**20.0**	(17.3; 23.0)	11.4	(10.1; 12.8)
	$25,000 -$35,000	13.4	(11.2; 16.0)	10.5	(9.2; 11.9)
	$35,000 - $50,000	15.6	(13.3; 18.4)	17.3	(15.8; 19.0)
	>= $50,000	33.7	(30.4; 37.2)	**55.1**	(52.9; 57.2)
MARITAL STATUS	Married	61.8	(58.5; 65.1)	**68.3**	(66.0; 70.4)
	A member of an unmarried couple	1.3	(0.7; 2.5)	2.5	(1.8; 3.5)
	Divorced	**11.7**	(10.1, 13.6)	5.6	(5.0; 6.4)
	Separated	0.9	(0.6; 1.5)	0.5	(0.3; 0.9)
	Widowed	**13.0**	(11.5; 14.7)	5.2	(4.7; 5.7)
	Never married	11.2	(8.5; 14.6)	17.9	(15.7; 20.3)

Discussion

Findings

According the CDC because of the baby boomers, the number of adults reporting a disability will increase, along with the need for appropriate medical and public health services. The CDC estimates the total number of Americans living with at least one disability at about 50 million, or 1 in 5 people. Although in terms of prevalence, disability prevalence is lower than the nation, Iowa's population is growing older. According to the census bureau, Iowa is 4th in the proportion of elderly, over the age of 85 years. People with disabilities face many barriers to good health. Studies show that individuals with disabilities are more likely than people without disabilities to report: Having poorer overall health, less access to adequate health care, limited access to health insurance, skipping medical care because cost and engaging in risky health behaviors, including smoking and physical inactivity. The CDC findings at the national level are not different from Iowa's.

Data limitations

The BRFSS collects self-reported information on many of the behaviors and conditions that increase the risk of chronic disease among adults, 18 years and older. The BRFSS is not intended for children surveillance. Each sample of the BRFSS is weighted to the respondent's probability of selection and to the age- and sex-specific population or age-, sex-, and race-specific population of each state, which allows generating state point estimates. It is a good and valid surveillance system but has limitations since the BRFSS is a cross-sectional survey. Causality and the direction of the multivariate results cannot be determined even with the inclusion of time factor. In addition, only non-institutionalized adults are included limiting the generalizability of findings as older people are more likely to live in residential communities and nursing homes. Earlier surveys were limited to landlines. Until 2008, cell phone users, hence a great deal of youth 18-24 and college students were under selected. In 2008, IDPH piloted a number of cell phones survey to increase the catchment of youth, 18-24. The results did not show inconsistencies with landlines responses.

Other sources of surveillance

There are other sources of surveillance. The American Community Survey (ACS) and the National Health Interview Survey (NHIS) provide more specific information on disability. Their definition of disability is different compared to BRFSS. The NHIS, modeled on the ACS, had a comprehensive module specially designed for disability, but unfortunately was implemented last in 1997.

Conclusion

This report is a follow up to 2008 BRFSS report. The findings in the 2010, beside small variations, were consistent with that of the 2008. Adult Iowans with disability compared to those without are faced with several challenges. They are more likely to suffer from debilitating chronic conditions and social disparities. Though receiving good preventive services and health care access facilitation - health clinics, screening and Immunization, PWD are faced with difficulties in terms of education achievement, work, income and family life.

APPENDIX

Data Tables

For tables with raw data, excel file is available at this link:
http://www.idph.state.ia.us/bh/disability_health.asp

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